

WATER AND SALINE BALANCES DURING PROLONGED IMMERSION
IN A WATER BATH

P. Eckert, K. Kirsch, C. Behn, and O. H. Gauer

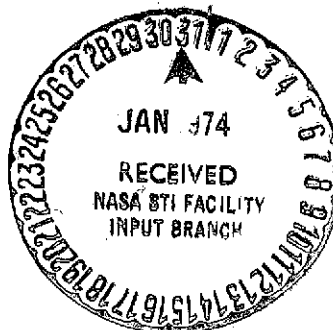
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16. Abstract Water and electrolyte elimination were studied during 48 hours' immersion. Initial water diuresis, increased hematocrit values and increased plasma protein were ob- served, sometimes failing to return to the normal levels; during the immersion period.					
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WATER AND SALINE BALANCES DURING PROLONGED IMMERSION
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In an extension of earlier studies [2], the behavior of /R70*
water and electrolyte elimination when immersion time is lengthened
to 48 hours was studied in five test subjects. As in short-term
trials, simulated weightlessness caused an initial water diuresis
with an increase in the hematocrit value and plasma protein
concentration.

In three of the test subjects, the changes dropped off con-
siderably in 12 to 20 hours.

In contrast, water and electrolyte elimination increased con-
siderably during the entire immersion time for two subjects,
with a simultaneously intensifying sensation of thirst. Both K^+
and protein concentrations in the plasma and the hematocrit
values had increased by the end of the trial. Body weight had
decreased considerably. Orthostatic load capacity in the tilting /R71
table test was reduced. This was described for the first time by
Graveline [1]. A considerable reduction in sleep time was
observed for these subjects during immersion.

Immersion produced a tendency toward water and electrolyte
losses via the diuretic reflex. Whether the hypothalamic system
adapts and reverses initial changes appears to be a function of
central nervous systems which, among other things, determine the
sleep/wake rhythm.

* Numbers in the margin indicate pagination in the foreign text.

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2. Kaiser, D., Eckert, P., Gauer, O. H., and Linkenbach, H.J., "Circulation and water balance during immersion in a water bath," Pflügers Arch. Ges. Physiol. 278, 52 (1963).